Introduction

While the stability of a person's attachment representations has been broadly explored and discussed across the lifespan (e.g., Carr, 2012; Fraley, 2002; Simpson, Collins, Tran, & Haydon, 2007; Dykas & Cassidy, 2011), no research to date has explored the possibility of context-specific variation in attachment security within a given relationship. Girme and colleagues (2018) have identified support for the idea that within-person variation in general attachment representations can occur over time and can significantly impact relational wellbeing. In the present article we introduced the idea of context-specific attachment and sought to (a) develop and validate initial scales to assess context-specific attachment patterns in Traditional-Chinese, and (b) examine whether child-parent attachment security can be experienced differently across the contexts of sport and academics. We then explored the relationship such context-specific attachment patterns shared with general attachment representations and psychological wellbeing.

The conceptualization of hierarchical attachment representations within a given child-parent relationship: Global, contextual, and episodic levels of attachment

The research on adult attachment has diverged into two distinct research "traditions" (Carr, Colthurst, Coyle, & Elliott, 2013). On one hand, are researchers who "…tend to think psycho-dynamically, be interested in clinical problems, prefer interview measures and behavioural observations over questionnaires, study relatively small groups of subjects…" (Bartholomew & Shaver 1998, p. 27). On the other hand, are personality and social psychologists "…who tend to think in terms of personality traits and social interactions, be interested in normal subject populations, prefer simple questionnaire measures, study relatively large samples…" (Bartholomew & Shaver 1998, p. 27). These lines of research are both derived from the assumptions at the heart of Bowlby's theory (Jacobvitz, Curran, & Moller., 2002) yet have evolved according to underlying assumptions and measurement techniques of contrasting subcultures (Bartholomew & Shaver 1998). Many of the distinctions between these two lines of enquiry are reflected in how researchers have approached the measurement of attachment constructs. Not surprisingly, these different lines of research give rise to significant distinctions in terms of how attachment research is conceptually underpinned, how attachment is measured and how results are interpreted. In this investigation, we conceptualise attachment style in a social psychological sense, using a self-report paradigm as the basis for our studies.

Empirical research in the social psychological tradition has begun to explore variation in attachment models across the lifespan and within specific relationships (e.g., Davila & Sargent, 2003; La Guardia, Ryan, Couchman, & Deci, 2000; Fraley & Davis, 1997; Trinke & Bartholomew, 1997; Collins & Read, 1994; Pierce & Lydon, 2001; Overall, Fletcher, & Friesen, 2003; Gillath, Karantzas, & Fraley, 2016). For example, Davila and Sargent (2003) indicated that variation in interpersonal loss (e.g., loss of emotional support, closeness, or affection) in a specific relationship were associated with increases in attachment insecurity within the relationship. La Guardia and colleagues (2000) found that when individuals felt greater satisfaction of specific psychological needs (i.e., competence, autonomy, relatedness) in a given relationship, then they felt greater attachment security within that relationship. Furthermore, Gillath and colleagues' (2016) hierarchical perspective proposes that within a given relationship episodic/state-like factors can temporarily shape attachment representations, giving rise to state-like, episodic variation in attachment over time. For example, having a serious argument with a parent may cause a loss of trust in her, momentarily enhancing attachment insecurity within the relationship. Furthermore, Girme and colleagues (2018) have recently identified that within-person variation in attachment security is possible over time and that such variation impacts psychological wellbeing because it contributes to a lack of consistency. This can be particularly challenging for securely attached individuals who "expect" consistency from partners (Girme et al., 2018).

Following these findings, in this paper we argue that it may also worth considering variation in relation to contextual representations of attachment in a given relationship. Contextual variation might be referred to as a cluster of repeated momentary episodes in a given context that create meaningful "contextual variability" within a specific relationship (Lai & Carr, 2018). For instance, in the context of child-parent relationships, there may be particular parental behaviours that are more prominent in a given context (e.g., sport or academics) that trigger or shape individuals' attachment representations with the parent in one specific context but *not* in other contexts where interactions with the same parent occur. Also, individuals' attachment orientations within a given relationship at a contextual level may be shaped by lower (e.g., episodic) and/or higher (e.g., global) order levels, which might mean that context-specific schema act as mediators to connect global and episodic levels of specificity by means of top-down and/or bottom-up processes (Lai & Carr, 2018).

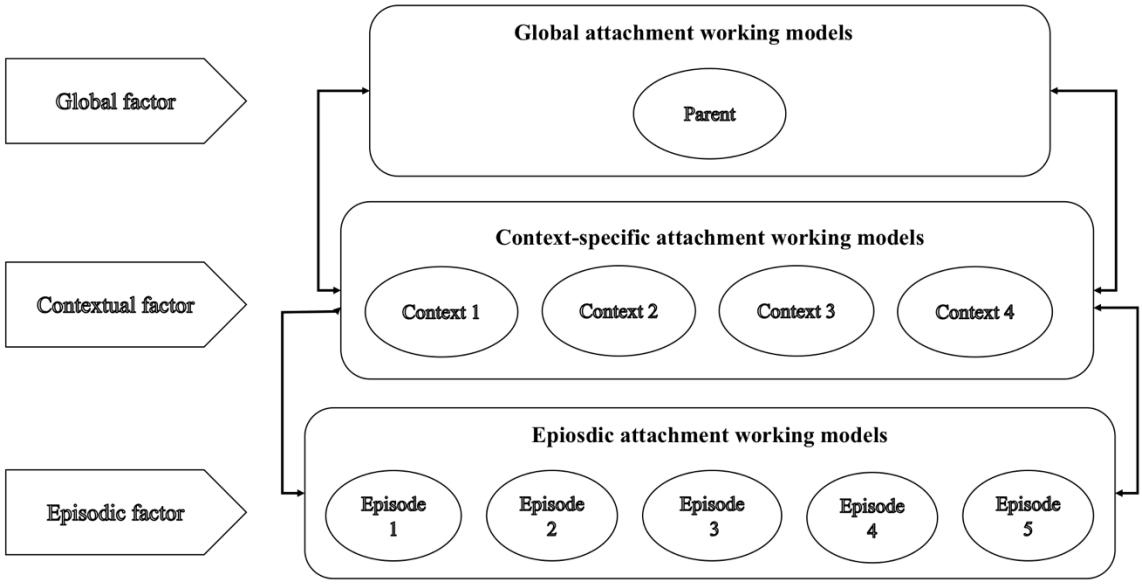

Figure 1 A hierarchical structure of attachment representations within a specific parent-child relationship

Why should child-parent attachment representations vary across contexts?

Context-specific representations of attachment might be referred to as schema in which one's attachment representations with parents vary by context (e.g., sport or academics) and are stored and experienced as such in a psychological and emotional sense. If this were true, it would be important to ask what kinds of contexts have the capacity to shape and sculpt a contextual-level child-parent attachment representation. Of course, this question is complex and may depend heavily upon a variety of factors. It could be argued that many Western children's lives revolve around contexts such as academics and/or extracurricular activities like sport, art, or music (Jamber, 1999; Greendorfer & Lewko, 1978; Sage, 1980, Carr & Weigand, 2014) and previous research has shown a great deal of interest in the mechanisms behind parental influence on wellbeing in such contexts (Fredricks & Eccles, 2004; Eccles, Wigfield, & Schiefele, 1998; Tofler, Knapp, & Lardon, 2005b; Assor, Roth, & Deci, 2004; Weigand, Carr, Petherick, & Taylor, 2001).

For instance, in the specific contexts of academics and sport, research (e.g., Ames, 1992; Brophy, 1987) has strongly suggested that parental belief systems in relation to a child's ability and their subjective evaluation of children's successes and failures serve as influential contextual cues that shape children's beliefs, affective patterns, and behavioural responses in that context. Environmental characteristics (e.g., highly public, competitive arenas, evaluation/reward systems, interpersonal complexity) emphasized in contexts such as

academics or sport have the capacity to induce parental focus on specific goals and expectations for children and this has been shown to influence psychological outcomes (e.g., enjoyment, cognitive anxiety, needs satisfaction) (Weiss, Amorose, & Wilko, 2009; Hall & Kerr, 1997; White & Zellner, 1996). In short, there are reasons to believe that specific contexts have the capacity to fundamentally alter the "quality" of child-parent interactions to the extent that they may constitute shifts in how child-parent attachment relationships are experienced and perceived.

In the sporting literature, for example, parents who create a performance-oriented motivational climate, in which recognition, praise, evaluation, and value are attached to children's demonstration of ability and superiority, are more likely to resort to controlling practices in their interactions with children. Children exposed to this motivational atmosphere have been shown to experience thwarted needs for autonomy, competence, relatedness, and associated negative emotions (e.g., anxiety, stress, pressure), especially when they are not able to meet parental requirements (Carr & Weigand, 2014). These performance-approach oriented motivational, cognitive, and affective cues could activate and foster sport-specific contextual child-parent attachment representations. However, these sport-specific attachment representations need not necessarily be salient with the same parent in other contexts where secure attachment interactions may be found. This may be an example of how unique contextual cues might trigger context-specific attachment schema within child-parent relationships.

The concepts of parental conditional regard (PCR) and achievement by proxy distortion (ABPD) have also been considered as maladaptive parenting practices, especially in the context of sports and academics (Tofler & Butterbaugh, 2005a; Tofler, Knapp, & Lardon, 2005b; Baldwin, 1994; Deci & Ryan, 1995; Harter, 1993; Assor, Roth, Deci, 2004; Curran, 2018). These achievement domains are platforms for the demonstration of PCR and ABPD as context-specific socializing practices. Specifically, parental conditional positive regard (PCPR) is thought to exist when parents are perceived to offer more affection, recognition and attention than usual when the child meets their expectations and desired aims. In contrast, parental conditional negative regard (PCNR) is when parents are perceived to withhold or give less affection, love and esteem than they usual do when the child does not meet their expectations. PCPR/PCNR have been identified as disruptive parenting practices linked to significant psychological costs (e.g., introjected regulation, unstable self-esteem, negative emotions, poor

relationships and well-being; perfectionistic strivings and concerns; competence contingent self-worth) (Assor, Roth, Deci, 2004; Assor & Tal, 2012), Assor, Kanat-Maymom, & Roth, 2014; Curran, 2018). Given that PCR has been considered as a "domain-specific" socializing strategy for bolstering contingent introjection (Assor, 2011; Assor et al., 2014; Ryan, Deci, & Grolnick, 1995), it is plausible that context-specific PCR might serve as a contextual cue that elicits predominantly insecure child-parent attachment schema in a given context.

"ABPD" may be another mechanism by which parents execute "context-specific" maladaptive socializing practices in children's achievement domains (especially in sport) (e.g., Tofler & Butterbaugh, 2005a; Tofler et al., 2005b). As an example, sport can be a competitive and reward/evaluation-focused context in which the demonstration of ability is important and emphasized by significant others. The unique characteristic and atmosphere of sport is an open door to aggressive and ambitious parents, vulnerable to ABPD pressures, especially when parents place their self-worth on a child's success and failure in sport. Objectification of a child is one of the mechanisms of parental achievement by proxy in Tofler at al.'s proposed ABPD model. That is, parents may come to regard their children as an object, rather than a person, as a means to indirectly satisfy their own needs for achievement. This controlling parental behaviour may drive a child to succeed to please parents or feel valued. However, it may also lead children to feel guilt or lose self-worth when they cannot meet parents' expectations and requirements. This introjection of parental objectification, thwarting one's psychological needs for autonomy, competence and relatedness in sport, could serve as an influential contextual cue to activate insecure "sport-specific" attachment representations.

The present study

Recent research exploring child-parent attachment and children's wellbeing has started to think about attachment in relation to specific contexts (especially achievement domains - like academics and sport) in children's lives. For example, a few researchers have examined the influence of father-child/parent-adolescent attachment relationships on academic-related outcomes (Newland, Chen, & Coyl-Shepherd, 2013), sport involvement (Sukys, Lisinskiene, & Tilindience, 2015), sport friendship (Carr, 2009), psychological need satisfaction and motivation in physical activity (Ullrich-French, Smith, & Cox, 2011), and the frequency of physical activity and physical self-concept (Li, Bunke, & Psouni, 2016). However, such research (e.g., Newland et al., 2013; Li et al., 2016) has tended to think about child-parent attachment patterns on a global-level and used global patterns of attachment to predict context-

specific psychological outcomes - no research to date has explored context-specific attachment patterns within a given relationship. Previous researchers (e.g., Davila & Cobb, 2003; Davila & Sargent, 2003) have suggested that attachment schema, like any other beliefs or attitudes, are prone to changes in accordance with current emotional (e.g., mood) or environmental factors (e.g., social circumstances, contextual factors). Hence, it may be helpful to explore whether internal working models of attachment could be conceptualized and assessed in this way. This study also sought to explore how child-parent attachment varied across contexts in Taiwanese youth. Two cross-sectional studies were designed: (1) to develop and validate contextual attachment scales in Traditional-Chinese, and (2) to explore variation in attachment security across the contexts of sport and academics and to relate this to both global attachment patterns and indicators of psychological wellbeing.

Study 1

Due to the lack of existing attachment-related measures that are appropriate for context-specific assessment, the purpose of study 1 was to develop, refine and validate items for a Traditional-Chinese version of attachment scales for sport (CAS-S) and academic (CAS-A) contexts, as well as to explore initial items, factorial composition, and structure of these two context-specific scales.

Method

Participants

A sample of 164 youth athletes in Taiwan was recruited via convenience (i.e., participants were approached through school teachers and coaches known to the first author) and then purposive (i.e., youths were eligible to be selected if they fitted selection criteria) sampling to pilot versions of the context-specific child-parent attachment scales. Several criteria were applied in the selection of appropriate participants: (1) To ensure they could be considered as involved in a sporting context, youths had been committed to attending training, practice sessions and competitions for a given sport at least for one semester (normally 4-5 months), (2) A chosen parent/or primary caregiver was actively involved in his or her child's sport-related activities for at least one semester (normally 4-5 months), (3) The assigned parent/caregiver also needed to be involved in the child's academic-related life. Consent from parents and youths was signed and returned prior to survey completion. For the pilot study, surveys and consent were obtained from three schools including youths from seven sports teams (i.e., basketball, baseball, table tennis, taekwondo, badminton, track and field, and dancing). One hundred and twenty-four

surveys were valid after screening out 26 for ineligible data (i.e., participants did not meet all of our selection criteria) and 14 invalid responses (i.e., fast and repeat responses – circling randomly or repeatedly on an answer rather than carefully selecting). This made for a 76% return rate (age range = 9 - 15 years; 72% boys, $M_{age} = 12.46 \pm 1.64$). Nine cases were identified as careless respondents and further deleted as there were more than 25% missing values found for these respondents. Furthermore, according to Tabachnick and Fidell's (2013) suggestions, the criterion of $p < .001$ with 21 degrees of freedom ($\chi^2 = 46.80$) was applied for investigating multivariate outliers with Mahalanobis distance. No further outliers among 115 cases were detected.

Procedures

After acquiring permission for data collection from schools and consent forms from parents and participants, each data collection session was confirmed with an appointed school staff member (i.e., teachers or coaches of sports clubs) in advance and surveys were administered by the lead author. Youths were instructed to complete anonymous self-report measures in class or a quiet place in the school (without parents present) and were encouraged to raise any questions concerning difficult items to the lead author. They were asked not to confer with peers and to be as honest as they could while responding. All participants were informed that they could refuse or withdraw their participation at any time. A small gift (either stationary or a sport-related accessory) was given to children who completed and returned the survey. Ethical approval was obtained from the authors' institutional ethics committee.

Measures

Contextual child-parent attachment

Youths' perceptions of context-specific attachment representations to an assigned parent were measured. Scale development procedures included initial item generation and item refinement, external review of items (i.e., content/logic and format check), and exploratory factor analysis (EFA) (according to the guidance of DeVellis, 2012 & Mclntire & Miller, 2007). Initially, pools of 46 items in Traditional-Chinese were used to explore each of Contextual Attachment Scales in Sport (CAS-S) and Contextual Attachment Scales in Academia (CAS-A), respectively. The items generated for these scales were compiled and revised by the authors by adapting existing attachment-related measures (i.e., AAQ, SAAM, VASQ) (West, Rose, Spreng, Sheldon-Keller, & Adam, 1998; Gillath, Hart, Noftle, & Stockdale, 2009; Bifulco,

Mahon, Kwon, Moran, & Jacobs, 2003) that we felt were suitable for adapting to a context-specific assessment of attachment.

Next, an external panel of four academics with experience conducting research in the fields of sport psychology, educational psychology, psychological measurement, and attachment theory was invited to validate the content (i.e., content and face validity), provide written comments, and suggest alternative wording. Based on their feedback, a revised pool of original English items was initially forward-translated into a Traditional-Chinese version by the lead author and two English-Chinese bilinguals subsequently conducted a backward translation and evaluated the equivalence of original and backward-translated versions respectively. Subsequently, a second external review was conducted by a panel of three Taiwanese psychologists with fluent English, two primary school teachers, and two sports coaches to assess the clarity, applicability and suitability of a Traditional-Chinese version of the CAS-S and CAS-A. Due to the comprehension and reading ability of younger schoolchildren (9-10 years) some items were reworded. The final phase of item refinement was to interview six children from different-age groups to gauge whether youth participants could understand the questions and were able to answer them (Collins, 2003). A "think-aloud" procedure (Ericsson & Simon, 1998) was applied to examine their comprehension of the meaning of each item. For example, we asked youths "what you understood by this word/question?", "what you are thinking about when answering this question?" and "how would you explain this question to your peers?" (Collins, 2003). Following these processes, final revised pools of 22 sport-specific and 22 academic-specific items were developed. We added two items (e.g., "I am always willing to admit it when I make a mistake") in each of the separate CAS-S and CAS-A scales from the Social Desirability Scale (SDS; Crown & Marlowe, 1960) to explore socially desirable response biases from participants.

To prime participants to consider a given context when making their responses, instructions were also provided to trigger contextual attachment schema with the selected parent/caregiver. For example, the instructions for CAS-S at the beginning of questionnaire were:

> The following statements ask you how you feel about the parent you have chosen (or significant other who is like your parent) who involved and affected you most *in the context of sport* over the past six months. The context could involve sports practice

sessions, time before games, during games, after games, or any other sports-related interactions you feel you have with the selected parent. Please try to imagine yourself and your parent in the context of your sport participation when you respond to each statement. Remember that your parent/teacher/coach will never know how you responded to these questions. Please circle the number on the 1 (Disagree strongly) to 5 (Agree strongly) scale for each statement that best indicates how much you agree or disagree *in the context of sports*.

Results

In accordance with common recommendations (e.g., Tabachnick & Fidell, 2013), EFA (SPSS version 23.0) was conducted using principal axis factoring extraction (PAF) with oblique (promax) rotation after a set of item analysis procedures (i.e., means, standard deviations, distribution, comparisons of extreme groups, inter-item correlation, corrected item-total correlation). Considering the common structures in existing attachment-related self-report measures (e.g., Bifulco, et al., 2002; Gillath, et al., 2009; West, et al., 1998; Bartholomew & Horowitz, 1991), the underlying structures of 22 (CAS-S) and 22 (CAS-A) items were explored by testing 2 to 4-factor solutions/retention. Based on the results of eigenvalues (above 1), scree plots, pattern coefficients ($> .40$), degree of cross-loading (no items with a loading above .40 on more than one factor), and internal reliability (Cronbach's $\alpha > .70$), a two-factor solution which included factors relating to *security* and *insecurity* seemed the best fit for each of the pilot CAS-S and CAS-A scales respectively. The analyses suggested that *security* (3 items; Eigenvalue = 3.09; loadings ranged from .74 to .83; $\alpha = .83$ and *insecurity* (4 items; Eigenvalue = 1.07; loadings ranged from .60 to .89; $\alpha = .81$) in the CAS-S accounted for 59.34% of the total variance (44.13% and 15.21% for the two factors respectively) with a moderate inter-factor correlation (r = -.46). Similarly, *security* (4 items; Eigenvalue = 4.28; loadings ranged from .66 to .84; $\alpha = .88$) and *insecurity* (4 items; Eigenvalue = 1.22; loadings ranged from .55 to .82; $\alpha = .74$) in the CAS-A scale accounted for 49.95% of the total variance (38.90% and 11.05% for the two factors respectively) and also demonstrated a medium inter-factor correlation (r = -.41).

Study 2

The purposes of study 2 were (1) to confirm the factor structures of the CAS-S and CAS-A scales explored in study 1 using confirmatory factor analysis (CFA), and (2) to further explore

context-specific attachment patterns with parents and their association with various indices of psychological wellbeing. A series of hierarchical regression analyses were employed to examine (1) the association between context-specific attachment patterns and global and context-specific psychological need satisfaction and need frustration, self-concept and depression, (2) whether youths' context-specific attachment patterns related to global attachment security, and (3) whether the degree of variation in parental attachment security between contexts (i.e., whether parents were perceived as consistent across contexts) related to youths' global psychological need satisfaction and frustration, self-concept, and depression.

Method

Participants and procedures

A sample of 550 youth athletes in Taiwan were recruited during the second semester of the school year and/or summer training sessions. The period of data collection for study two was approximately four months (from May to August). The same criteria and procedures as the pilot study were also applied for this study. After screening out 119 ineligible cases and invalid responses (i.e., fast and repeat responses), 431 valid surveys (a 78% return rate) with signed consent were secured from 17 schools and 21 different sports clubs (age range = 9 – 17 years; 75% boys, M_{age} = 13.65±2.46). Forty-four cases were identified as careless respondents (e.g., leaving a whole page blank) or as having more than 25% missing values. Furthermore, as Tabachnick and Fidell (2013) suggest, the criterion of $p < .001$ with degrees of freedom (number of variables) was applied for investigating multivariate outliers with Mahalanobis distance. No outliers among the 385 cases were detected. Participants were recruited to achieve a balance between rural and urban areas and between seven major cities in Taiwan.

Measures

Contextual child-parent attachment

The same versions of the CAS-S and CAS-A retained from the EFA in study 1 were used in study 2. After screening for normality and linearity to confirm that there were no discrepancies (skewness and kurtosis values within or close to the range of ±1.0 from zero) and that all observed variables exhibited linear relationships (Tabachnick & Fidell, 2013), CFAs were performed using IBM AMOS (version 23.0) with robust maximum likelihood estimation to evaluate the fit of a two-factor (security and insecurity) model with the same set of seven (for CAS-S) and eight (CAS-A) items respectively. The adequacy of the measurement and

structural models were evaluated by several goodness of fit indices recommended by Hu and Bentler (1999), Marsh, Hau, and Wen (2004), and Marsh (2007). A non-statistically significant chi-square (χ^2) value ($p > .05$) and NC (χ^2 / df) between 1 to 3 demonstrated a good model fit. The goodness-of-fit index (GFI), adjusted goodness of fit index (AGFI), comparative fit index (CFI), relative fit index (RFI), incremental fit index (IFI), and normed fit index (NFI) greater than 0.90, and the root mean square error of approximation (RMSEA) and standardized root-mean-square residual (SRMR) less than 0.8 indicated that the models had an adequate model fit. An acceptable fit for the CAS-S was obtained: χ^2 (13) = 39.89, $p< .001$, CFI = 0.97, GFI = .98, AGFI = .95, RFI = .94, NFI = 0.96, IFI = 0.97, SRMR = 0.06, RMSEA = 0.07; and an acceptable fit for the CAS-A was also obtained: χ^2 (18) = 36.44, $p< .01$; CFI = 0.99; GFI = .98, AGFI = .96, RFI = .96, NFI = 0.97, IFI = 0.99, SRMR = 0.04, RMSEA = 0.05. Furthermore, due to theoretical and empirical links between attachment styles and basic psychological needs, the criterion (concurrent) validity of the CAS-S and CAS-A were evaluated using regression analyses to examine the predictive capacity of the subscales - using (1) the sport security and (2) sport insecurity scales of the CAS-S to predict sport-specific need satisfaction/frustration, and the subscales – (3) academic security and (4) academic insecurity of the CAS-A to predict academic-specific need satisfaction/frustration. Results demonstrated the subscales of the CAS-S were significantly associated with youths' perceptions of sport-specific need satisfaction ($R^2 = .26$; $p < .001$) and need frustration ($R^2 = .35$; $p < .001$). Also, the subscales of the CAS-A were significantly associated with perceptions of academic-specific need satisfaction ($R^2 = .37$; $p < .001$) and need frustration ($R^2 = .38$; $p < .001$). Table 1 displays the individual predictive contribution (*B*) of each of subscale on the outcome variables (see step 1). Overall, the results indicated the CAS-S and CAS-A had acceptable criterion validity. Total CAS-S and CAS-A scores were calculated by averaging the sum of items in each of the separate subscales (security and insecurity).

Global child-parent attachment

Youth participants' global attachment styles with the selected parent were assessed using the Traditional-Chinese version of the Inventory of Parent and Peer Attachment (Sun, 2004), an adaption of the IPPA (Armsden & Greenberg, 1987). This adapted inventory consists of twenty items; nine, seven, and four items, respectively, tapped into three subscales of communication, trust, and alienation (reverse score) on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). A total global attachment score was calculated by averaging the sum of the subscale items. Considering the younger athletes (aged 9-10) in this study, all items were

reviewed by a group of six school children (aged 9) before the main survey was administered. A CFA was then performed, after deleting one item (i.e., I feel angry with my parents) and yielded an acceptable fit: χ^2 (145) = 372.86, p< .001; CFI = 0.94; RMSEA = 0.06. All items loaded between .50 and .78 upon three components: *communication* (e.g., "My parent helps me to understand myself better"), *trust* (e.g., "My parent respects my feelings"), and *alienation* (e.g., "I get upset with my parent easily") (Cronbach's α ranged from .73 to .87).

Global and contextual psychological need satisfaction and frustration

Youth participants' perceptions of need satisfaction and frustration both *globally* and *in the contexts of sport and academics* were measured with an adapted (Simplified-Chinese) version of the Basic Psychological Need Satisfaction and Frustration Scale (BPNSF; Chen et al., 2015). The BPNSF comprised three major components of basic needs: (1) *need for autonomy* refers to the experience of volition and psychological freedom when engaging in an activity, (2) *need for competence* concerns the experience of being confident and effective in dealing with one's environment and achieving desired outcomes, and (3) *need for relatedness* involves the feeling of being connected with and loved or cared for by significant others. BPNSF is a 24-item self-report questionnaire consisting of six four-item subscales (autonomy satisfaction, autonomy frustration, competence satisfaction, competence frustration, relatedness satisfaction, relatedness frustration). Considering the differences in word usage between Taiwan and Mainland China and the readability for nine-year-old youth athletes (all participants in Chen and colleagues' study were between age 17-18), we slightly reworded the items in the Traditional-Chinese version in accordance with common Taiwanese expression. All items were then reviewed by a group of psychologists, school teachers/coaches, and younger athletes to refine some difficult items. In order to facilitate participants with differentiating between their global, sport-specific and academic-specific experiences in the items, three stems (e.g., "When I participate in sport…", "When I am involved in academic-related activities…", and "In general …") preceded each item on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). By doing so, participants were expected to respond to each item three times by reflecting on and comparing global ratings and the different contexts of sport and academics at the same time. Total sport-specific, academic-specific, and global BPNSF scores were calculated by averaging the sum of the subscale items. The Cronbach's α values for youths' need satisfaction and frustration in the context of sport-specific (.89 and .83), academic-specific (.90 and .85), and globally (.90 and .85) were internally consistent.

Self-concept and depression

We employed a valid Traditional-Chinese version of the Beck Youth Inventories- II for Children and Adolescents (BYI-II; Hung, Chen, Cho, 2008) to assess current self-reported symptoms of depression and self-concept among the youth athletes. Each of five inventories in BYI-II contains 20 items about thoughts, feelings and behaviours associated with emotional and social impairment in youth. For the purpose of the current study, only the Beck Depression Inventory (BDI-Y) (e.g., self, life and the future, feelings of sadness and guilt, and sleep disturbance) and the Beck Self-Concept Inventory (BSCI-Y) (i.e., cognitions around competence, potency, and positive self-worth) were used to assess youths' negative and positive thoughts. Youth participants were asked to rate each symptom on a 4-point Likert scale ranging from 0 (never experienced) to 3 (always experienced). A total depression and self-concept score were calculated by summing the subscale items and were then transferred to T scores (varied with gender and age groups). The Cronbach's α values were .93 for the BDI-Y and .92 for the BSCI-Y.

Results

Preliminary analyses

Considering some demographic factors related to youth athletes' sport participation and parenting practices could affect the main findings, Multivariate Analysis of Variance (MANOVA) was conducted to examine the impact of four relevant factors: (1) youths' gender, (2) the competition level of the sport they played (i.e., club, county, regional, and national levels), (3) if the nominated parent had also been the coach of the child's sport, and (4) if the parent was previously an athlete themselves. These factors were examined in relation to the four subdimensions of contextual attachment (i.e., security in sport, insecurity in sport, security in academics, and insecurity in academics). Results revealed no significant differences by gender (Wilk's $\Lambda = 0.98$, $F_{(4, 344)} = 1.50$, $p < .20$; $\eta 2 = .02$), competition level (Wilk's $\Lambda = 0.96$, $F_{(16, 1052)} = 0.86$, $p = .62$; $\eta 2 = .01$), a parent being the coach (Wilk's $\Lambda = 0.97$, $F_{(4, 344)} = 2.30$, $p = .06$; $\eta 2 = .03$), and the parent being an athlete (Wilk's $\Lambda = 0.99$, $F_{(4, 344)} = 0.57$, $p = .69$; $\eta 2 = .01$).

Primary analyses

In order to explore the associations between within-parent context-specific attachment and contextual and global psychological outcomes, a series of two-step hierarchical regression analyses were conducted with (1) global attachment security (2) contextual need satisfaction,

(3) contextual need frustration, (4) global need satisfaction, (5) global need frustration, (6) self-concept, and (7) depressive symptoms as outcome variables. Using this approach of regression analysis is useful for exploring the predictive power of the individual contextual attachment variables and their interaction terms (i.e., constructing new variables that reflect the transformed product of the relevant subdimensions of attachment) on outcome variables after. Four new variables that represented interaction terms were constructed: (1) sport security*academic security, (2) sport insecurity*academic security, (3) sport security*academic insecurity, (4) sport insecurity*academic insecurity. Before each regression analysis, the data was screened in a series of a priori examinations (for normality, linearity, homogeneity tests, singularity, and multicollinearity diagnostics) (Tabachnick & Fidell, 2013). Considering that using the interaction terms in regression analysis caused multicollinearity problems (e.g., a tolerance of less than 0.10 and/or a VIF of above 10), all variables were transformed to Z scores before primary analysis (Tabachnick & Fidell, 2013).

Contextual attachment variations in association with global attachment security

A two-step hierarchical regression analysis examined the predictive power of the four context-specific attachment dimensions (step one) and their interaction terms (step two) on youth's perceived global attachment security. Results suggested that the four interaction terms in step two did not add any significant predictive power ($R^2 = .63$, $F_{inc\ (4, 376)} = 1.65$, $p = .16$) but that in step one the sub-dimensions of contextual attachment significantly predicted global security ($R^2 = .63$, $F_{(4, 380)} = 158.82$, $p < .001$). Specifically, the individual variables of *sport security* ($\beta = .16$, $p < .001$), *academic security* ($\beta = .40$, $p < .001$), and *academic insecurity* ($\beta = -.36$, $p < .001$) were significant predictors (for correlations refer to Table 2).

Contextual attachment variations in association with contextual and global psychological outcomes

Eight two-step hierarchical regression analyses were employed to examine the predictive power of the four context-specific attachment dimensions (step one) and their interaction terms (step two) on youths' perceptions of (1) sport-specific need satisfaction, (2) sport-specific need frustration, (3) academic-specific need satisfaction, (4) academic-specific need frustration, (5) global need satisfaction, (6) global need frustration, (7) self-concept, and (8) depressive symptoms. Table 1 displayed eight hierarchical regression analyses for the contextual attachment variables on both contextual and global psychological outcomes, showing the standardized regression coefficients (β), the multiple R^2, the adjusted R^2, the squared semi-

partial correlations (sr_i^2), *F* ratio, and the incremental *F*. In step one of these analyses, it is interesting to note that, apart from for sport-specific need frustration (where academic insecurity was a stronger predictor than sport insecurity) sport-specific attachment variables more strongly predicted sport-specific outcomes and academic-specific attachment variables more strongly predicted academic-specific outcomes (hinting at a context-level specificity effect). Academic-specific contextual attachment was a stronger predictor of all global level outcomes (global BPNS, BPNF, self-concept, and depressive symptoms) apart from self-concept. The regression analyses revealed no significant predictions in step two for the four interaction terms on most of the outcome variables (1~7). However, interaction added predictive power to the prediction of depressive symptoms ($R^2 = .24$, $F_{inc\ (4, 376)} = 3.12$, $p < .05$) after the four subdimensions of attachment were considered individually. Specifically, the interaction term *sport insecurity*academic security* was responsible for this significant prediction ($\beta = -.18$, $p < .01$).

Referring to Aiken and West's (1991) recommendations, follow-up simple slope analyses were performed to further test the associations between depressive symptoms and the significant interaction terms. To do so, four simple slope analyses were conducted to examine the relationships (1) between depressive symptoms and the individual variable of sport insecurity separately, at chosen levels of academic security, and (2) between depressive symptoms and the individual variable of academic security separately, at chosen levels of sport insecurity. As Cohen and colleagues (2003) have suggested, we labelled the level for a given sub-dimension of contextual attachment as greater or less than the mean by one standard deviation (SD) as "high" or "low," respectively. Then, the resulting simple slopes, using Aiken and West's (1991) procedures (shown in Figure 1), were evaluated by exploring the significance of the difference between two slopes (the calculation formulas refer to Soper, 2019; Cohen et al., 2003). Results demonstrated the significant differences between two slopes (shown in Figure 1) illustrating that (1) youths perceiving high insecurity in sport experienced higher scores in depression than low insecurity in sport when they had high security in academics ($t_{(766)} = 6.91$, $p < .001$), (2) youths perceiving high insecurity in sport also experienced higher scores in depression than low insecurity in sport when they had low security in academics ($t_{(766)} = 4.33$, $p < .001$), (3) youths perceiving low security in academics experienced greater scores in depression than high security in academics when they had high insecurity in sport ($t_{(766)} = 4.30$, $p < .001$), and (4) youths perceiving low security in academics experienced greater scores in depression than high security in academics when they had low insecurity in sport ($t_{(766)} = 7.17$, $p < .01$). Overall,

youths perceiving *high insecurity in sport / low security in academics* and *low insecurity in sport / high security in academics* had the highest and lowest scores, respectively, in depressive symptoms, and those perceiving *high insecurity in sport / high security in academics (or low insecurity in sport / low security in academics)* had moderate scores (for correlations and descriptive statistics refer to Table 2). Hence, *greater security* and/or *lesser insecurity* in *both* contexts was associated with lower levels of depressive symptoms and that *lesser security* and/or *higher insecurity* in *both* contexts was associated with higher levels of depressive symptoms, hinting that contextually consistent insecurity across the two contexts could have an independent and additional effect on depressive symptoms.

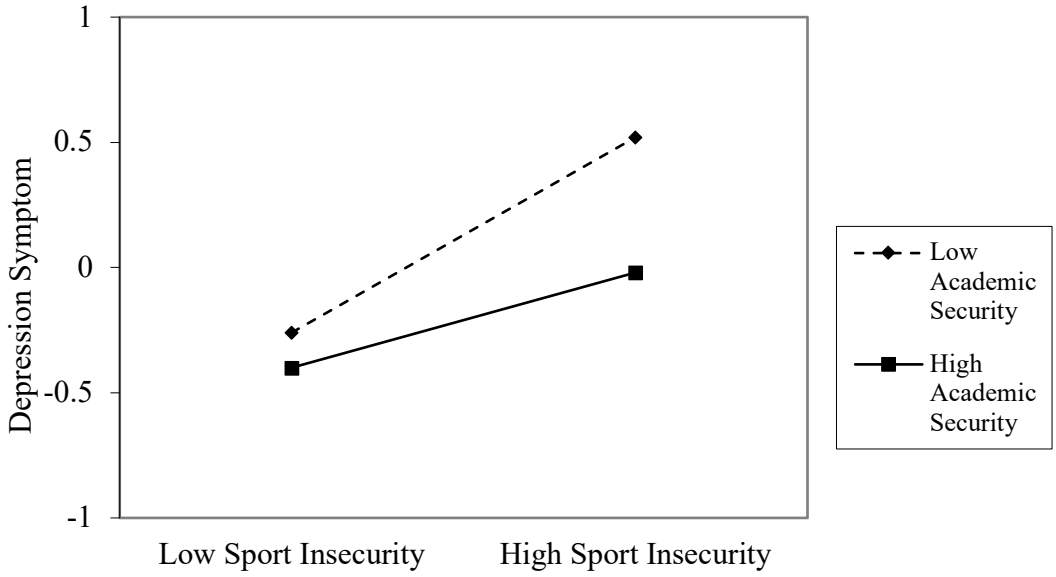

Figure 1. Interaction effects between academic-specific security and sport-specific insecurity on youth's perceived depression symptom. ("High" and "low" indicates one SD away from the means).

The size of difference in attachment patterns and psychological outcomes

Next, a series of regression analyses were used to test whether the size of the difference in perceived attachment security (regardless of the qualitative nature of the difference) between contexts for the nominated parent was related to wellbeing indices. To do this, four hierarchical regression analyses were conducted to examine whether the degree of difference in attachment security between contexts (the difference between sport and academic context-specific perceptions of within-parent security) predicted (1) global psychological need satisfaction, (2) global psychological need frustration, (3) self-concept, and (4) depression. A variable reflecting the variation in youths' attachment security across contexts was assessed by calculating size of the difference between the sport-specific and academic-specific attachment

security scales and regressing the outcome variables on this difference. Considering perceived global attachment security might confound the prediction of the size of the difference between contexts, mean level of global security was entered in step one of each regression model, and the difference score was added in step two to explore whether (or not) it predicted any further variance over and above mean global attachment security. Results revealed that 80% of youth athletes (n= 385) experienced differences in attachment security between sport (CAS-S security scale) and academic (CAS-A security scale) contexts, of 0.8-3.08 (rated on a 5-point Likert scale). Global attachment security significantly predicted global need satisfaction (R^2 = .44, $F_{(1, 383)}$ = 304.28, p < .001), global need frustration (R^2 = .32, $F_{(1, 383)}$ = 176.99, p < .001), self-concept (R^2 = .13, $F_{inc\ (1, 383)}$ = 58.71, p < .001), and depressive symptoms (R^2 = .18, $F_{(1, 383)}$ = 80.11, p < .001). In step two, however, the differences in attachment security between contexts did not demonstrate any further predictive power in relation to global need satisfaction (R^2 = .45, β = -.09, $F_{inc\ (1, 382)}$ = 3.57, p = .06), global need frustration (R^2 = .32, β = .02, $F_{inc\ (1, 382)}$ = 0.09, p = .76), self-concept (R^2 = .13, β = -.05, $F_{inc\ (1, 382)}$ = 1.13, p = .29), or depressive symptoms (R^2 = .18, β = .05, $F_{inc\ (1, 382)}$ = 1.58, p = .21), although the prediction approached significance for global need satisfaction (for correlations refer to Table 2).

Discussion

This study sought to explore the viability of context-specific attachment variation within a specific child-parent attachment relationship by (a) developing and validating initial scales to assess context-specific attachment patterns in Traditional-Chinese, and (b) examining whether child-parent attachment security can be experienced differently across the contexts of sport and academics and if such contextual variation related to global attachment and indices of wellbeing. While there are important caveats and points for discussion, our analyses provided initial evidence suggesting that youth do perceive attachment-related variation in child-parent attachment patterns across different contexts and these differences may be meaningful.

Previous studies (e.g., Tofler & Butterbaugh, 2005a; Tofler, Knapp, & Lardon, 2005b; Rapport & Meleen, 1998) have suggested that in certain contexts parents can take on particular roles or ways of being (i.e., they may be a child's manager, their coach, or have particular hopes, dreams, or ambitions connected to the context and their child's involvement in it) that increase the likelihood that they are experienced by children as less caring and more controlling and may conflict with many of the fundamental aspects of caregiving typically associated with the

child-parent attachment relationship. For example, “managing” a child performer may require parents to adopt a more emotionally distant and objective perception of the child (e.g., in the managerial role perhaps the child is viewed as a “source of income” or as “the means to an end”) that is incompatible with features of a caring and secure parental bond.

Regression analyses provided some support for the fact that the context-specific attachment scales *more strongly* predicted contextual responses related to need satisfaction and frustration within the same context. Sport need satisfaction was most strongly predicted by perceived sport security, academic need satisfaction was most strongly predicted by perceived academic security, and academic need frustration was most strongly predicted by perceived academic insecurity. These associations and their relative predictive power were consistent with the idea that parents’ attachment patterns in a specific context were the strongest drivers of need satisfaction and frustration within that context. Such findings hint at the possibility that youths can distinguish and “partial out” attachment behavior from parents that is tied to a given context and that these context-specific judgements could be a more powerful predictor of context-specific responses.

However, it should be noted that for sport-specific need frustration it was the case that perceived academic insecurity was the strongest predictor variable, and that for all context-specific outcome variables there were also cross-contextual predictions where academic-specific attachment dimensions predicted sport-specific outcomes and vice versa. This suggests that there was not complete “partial out” of contextual attachment and the precise meaning of the cross-contextual predictive associations needs further exploration. For example, it may be that youths find it difficult to provide accurate judgements of parental attachment behavior in a contextual sense. Perhaps one’s capacity to judge a parent’s behavior across multiple contexts is affected by the fact that the contexts “cross-over” in real life or perhaps context-specific judgements and ratings will always to some degree reflect a global sense of attachment (hence, context-specific judgements will be positively correlated in a contextually consistent way as they were in this study) *and* a degree of context-relevant variation.

Furthermore, it is important to note that the *relative importance* of a context may, of course, dictate the extent to which it relates to and impacts various outcome variables and global attachment patterns. For example, it may be that the Taiwanese sample and their families in this study placed greater emphasis on academics than on sport and that their outcomes and

global attachment patterns were more strongly connected to academic context-specifics than to sport. Previous studies (e.g., Chen & Uttal, 1988) on cultural comparison of parental expectations and beliefs in children's academic-related achievement have suggested that Chinese (similar to Taiwanese culture) parents seem to place much higher emphasis on academics than American parents and that Chinese youth are more willing to accept their parents' advice and/or care about fulfilling parental expectations in academics than American youth. Previous research (e.g., Phillipson & Phillison, 2007; Chen & Ho, 2012) exploring the relationship between parental involvement and Taiwanese students' belief and achievement in academics has indicated that Taiwanese parents' educational values and expectations were largely influenced by the Confucian belief that promoted the importance of being well-educated in order to attain higher social status. This may explain the stronger association and predictive power of the academic-specific attachment variables in this study. Future studies could explore this further by gauging the relative importance of a given context (e.g., academic, sport) to children and families and the relationship this shares with global attachment perceptions and other outcomes.

In terms of context-specific interaction variables, regression analyses provided little evidence of a combined, interactive effect for the contextual variables. It might be conceptualized that "contextually-consistent security" (across both contexts) or "contextually-consistent insecurity" (across both contexts) could offer further predictive value in relation to the outcome variables. This would suggest that pervasive context-specific patterns of attachment (i.e., attachment patterns that are consistent across *both* contexts) are important. However, our analyses provided little evidence of this across the outcome variables. Only for depressive symptoms did the data suggest that there was a unique effect for the interaction between perceptions of sport insecurity and academic security, suggesting that when the sporting context was low in insecurity and the academic context was high in security then depressive symptoms were lower and that when the reverse was true depressive symptoms were higher. This hints at the possibility of a cross-contextual-consistency effect. However, the fact that such an effect was not evident across any other variables suggests it should be interpreted with caution.

We did not find support for the idea that the *degree* of variation between contexts had any predictive capacity when controlling for global attachment security. Approximately 80% of our sample reported some degree of difference in within-parent attachment security between the contexts and this difference score had a weak negative relationship with global attachment

security (r = -.14). This suggested that, to some extent, the greater the difference youths perceived there to be in attachment security *between contexts* then the lower their overall levels of global attachment security were likely to be. However, controlling for global attachment security, the size of the difference in context-specific attachment ratings was not a significant predictor of the outcome variables in our study. At first glance, this suggests that such contextual variation may well be a significant part of what constitutes and helps to shape global attachment perceptions in young people. However, given that the correlation between this difference score was weak in our study, there may be merit in further exploring how contextual variation patterns in relation to parental attachment independently predict psychological outcomes.

Limitations and Recommendations

While the current study provides interesting data in relation to context-specific attachment patterns and variation in child-parent relationships, there are limitations to note for future research. Firstly, our measurement and conceptualization of context-specific attachment patterns needs further development. We assumed that the contexts of academia and sport were an adequate reflection of key contexts that played a significant role in our participants' family lives. This assumption may not be an adequate reflection of a context for all families, cultural groups, and individuals. It may be that our sample of young athletes (who likely have a higher investment in sport and whose parents are perhaps more highly involved) are a biased reflection of the sporting context and that both the measure and the findings would be less applicable to less athletic youth samples. This also speaks to a need to question whether context-specific measures of attachment-related characteristics can ever be completely generalizable. Perhaps the specific contexts in individuals' lives will always vary and there will either be a need to develop specific measures of context-specific attachment that adequately reflect each given context or to develop a context-specific attachment measure that is adaptable enough to reflect a spectrum of contexts and can be adapted to fit the contexts that reflect participants' lived experiences.

Our contextual attachment scales in Traditional-Chinese were developed and validated in a sample of Taiwanese youth. However, cross-cultural attachment researchers (e.g., Wang & Scalise, 2010; Wang & Mallinckrodt, 2006; Rothbaum et al., 2000; Takahashi, 1990) have questioned whether the fundamental concepts and tenets of attachment theory, rooted in

western ideals (e.g., emphasizing unique personal characteristics or considering self and others as separate units), might be contrary to the nature of traditional Chinese culture. Thus, western-based attachment constructs and self-report instruments might not be immediately applicable to Asian populations without considering how their cultural beliefs and norms might bias western-based self-report scores and responses. Previous studies (e.g., Wang & Scalise, 2010; Wang & Mallinckrodt, 2006) on cultural comparison (using Chinese-version attachment scales adapted from western-based measures in Taiwanese participants) have evidenced that Taiwanese adults with indigenous Chinese cultural backgrounds reveal higher levels of attachment anxiety (for men) and attachment avoidance (for females) than western adults. These authors suggested that future studies might adopt "culturally adjusted" attachment scores to explore variables of interest (for detailed protocol of operating culturally adjusted attachment scores, refer to Wang and Scalise's [2010] study).

Furthermore, it is important to explore the nature of the reported contextual differences in this study. That is, where children and young people report experiencing parents differently, in an attachment sense, between contexts, what is the nature of such difference? How is it explained and experienced? How is parental behavior different and are parents aware of it? Qualitative research would go a long way to further elucidating such questions.

A challenging conceptual issue also relates to the extent to which we can be sure that the items in our context-specific attachment scales reflect "attachment" patterns in a bona fide sense and not simply parenting practices in a broader sense. This relates to being able to distinguish how context-specific child-parent *attachment* can be distinguished from context-specific *parental behavior*. While the two may be closely connected, there is also a need to carefully distinguish them. In the development of our context-specific measures, we only included, drew upon, and adapted items from validated scales that are attachment-specific and seek only to measure patterns of attachment. By adapting these items (and including items that we felt were relevant to a context-specific assessment of attachment) we sought to preserve validity in relation to a focus on attachment-relevant characteristics and not parental behavior in general. For example, we assumed that our contextual attachment assessment reflected a context-specific working model consistent with the idea of how attachment is represented in an abstract sense. Future work in this area would do well to explore what such contextual attachment representations reflect and how they relate to, yet differ from, general parental contextual behavior. Future

research should also be cautious about applying the scales we employed in Traditional-Chinese in English speaking contexts.

Conclusion

Our study provided initial evidence that there may be merit in conceptually and empirically exploring the idea of context-specific attachment. This could be a new, useful, and important avenue of research exploration in the field of attachment and parenting and could have implications for young people's wellbeing and parenting practice. However, as our study also suggested, this avenue of research is fraught with conceptual, methodological, and measurement issues that will need to be carefully considered and addressed by future researchers seeking to move the area forward.

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Table 1. Hierarchical regression analyses of contextual attachment variations on contextual and global psychological outcomes (N=385)

Predictor Variables	Regression 1 Sport-Specific BPNS (*B*)	Regression 2 Sport-Specific BPNF (*B*)	Regression 3 Academic-Specific BPNS (*B*)	Regression 4 Academic-Specific BPNF (*B*)	Regression 5 Global BPNS (*B*)	Regression 6 Global BPNF (*B*)	Regression 7 Self-Concept (*B*)	Regression 8 Depression Symptom (*B*)
Step 1: Subdimensions of Contextual Attachment								
Sport Security	.30***	.01	.16**	.01	.20***	.01	.01	.03
Sport Insecurity	.04	.18**	-.02	.15**	.01	.19***	-.21***	.18**
Academic Security	.23***	-.12*	.38***	-.16**	.34***	-.13*	.21***	-.12*
Academic Insecurity	-.10	.35***	-.17***	.42***	-.18***	.39***	-.06	.27***
R^2	.26	.29	.37	.38	.35	.35	.16	.21
Adjust R^2	.25	.28	.36	.37	.35	.34	.15	.21
F	33.27***	38.25***	54.64***	54.14***	51.70***	50.80***	17.69***	25.72***
Step 2: Interaction Terms								
Sport Security x Academic Security	-.01	-.02	.03	.02	.03	-.03	.00	-.06
Sport Security x Academic Insecurity	.02	.08	.03	.08	.05	.07	-.02	.05
Sport Insecurity x Academic Security	-.03	-.07	.05	-.06	.01	-.09	-.06	-.18***
Sport Insecurity x Academic Insecurity	.06	-.09	.10*	-.05	.07	-.07	-.03	.00
R^2	.27	.30	.37	.39	.36	.36	.16	.24
Adjust R^2	.25	.29	.36	.38	.34	.35	.14	.22
sr_i^2	.01	.02	.01	.01	.01	.01	.00	.03
ΔF	1.65	2.05	1.17	1.39	0.82	1.78	0.46	3.12*

Note. BPNS = Basic Psychological Need Satisfaction, BPNF = Basic Psychological Need Frustration. *P < .05, **P < .01, ***P < .001. All variables were transformed to Z scores before analyzing.

Table 2. Correlations among all attachment-related patterns and psychological-related variables (N=385)

Attachment patterns/ psychological outcomes	M (SD)	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Security in sport	4.05 (0.76)	-													
2. Insecurity in sport	2.02 (0.82)	-.44	-												
3. Security in academics	3.97 (0.74)	.58	-.40	-											
4. Insecurity in academics	2.17 (0.77)	-.37	.56	-.49	-										
5. Security global	3.79 (0.61)	.55	-.48	.69	-.65	-									
6. Cross-contextual difference in security	0.47 (0.50)	-.25	**.06**	-.30	.16	-.14	-								
7. Satisfaction in sport	4.00 (0.61)	.46	-.24	.44	-.31	.53	-.11	-							
8. Frustration in sport	2.19 (0.62)	-.27	.42	-.35	.50	-.51	**.09**	-.57	-						
9. Satisfaction in academics	3.75 (0.67)	.45	-.33	.56	-.43	.61	-.15	.68	-.52	-					
10. Frustration in academics	2.32 (0.65)	-.31	.45	-.42	.58	-.58	**.07**	-.49	.83	-.67	-				
11. Satisfaction global	3.96 (0.61)	.47	-.32	.54	-.42	.67	-.17	.79	-.52	.79	-.58	-			
12. Frustration global	2.20 (0.63)	-.29	.45	-.39	.56	-.56	**.09**	-.47	.85	-.58	.89	-.63	-		
13. Self-concept	1.92 (0.51)	.25	-.33	.33	-.28	.37	-.10	.50	-.36	.48	-.37	.49	-.36	-	
14. Depression	0.49 (0.42)	-.23	.37	-.31	.42	-.42	.12	-.37	.55	-.41	.61	-.39	.60	-.40	-

Note. M (SD): Mean (Standard Deviation). All variables are significantly correlated ($p<.05$), apart from bold values.